

1895

Invention in Patent Law

Charles Hain Werner
Cornell Law School

Follow this and additional works at: http://scholarship.law.cornell.edu/historical_theses



Part of the [Intellectual Property Commons](#)

Recommended Citation

Werner, Charles Hain, "Invention in Patent Law" (1895). *Historical Theses and Dissertations Collection*. Paper 58.

This Thesis is brought to you for free and open access by the Historical Cornell Law School at Scholarship@Cornell Law: A Digital Repository. It has been accepted for inclusion in Historical Theses and Dissertations Collection by an authorized administrator of Scholarship@Cornell Law: A Digital Repository. For more information, please contact jmp8@cornell.edu.

Thesis

INVENTION IN PATENT LAW

By

. Charles Hain Werner, B.S. .

for

The Degree of Bachelor of Laws

. Cornell University

1895

American legislation on patents for inventions is based on the first article of the Constitution. Section 8 declares that Congress shall have power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The subject is now regulated by sections 4883 to 4928 of the Revised Statutes of the United States.

It is provided by section 4886 of the Revised Statutes that: "Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor."

Any one who understands each and every part of the foregoing section, as it is construed by the courts, has a good knowledge of a large part of the American patent law. It is highly improbable that the English language contains another collocation of the same number of words upon

the construction and interpretation of which there has been lavished a like amount of skill, research, and learning.

It will be observed that the statute does not merely require that the subject matter of a patent should be new, but it must be invented or discovered. As to what invention really is has taxed the courts ever since the passage of the patent acts. The various writers on patent law have ventured different definitions. Simonds says:

"Invention implies the exercise of a creative faculty in mind, as distinguished from the exercise of the judgment supposed to be possessed by persons skilled in the particular art to which the subject matter relates." A more scientific definition is given by Robinson in the following language. "Every invention contains two elements:

(1) An idea conceived by the inventor; (2) An application of that idea to the production of a practical result.

Neither of these elements is alone sufficient. An unapplied idea is not an invention. The application of an idea, not original with the person who applies it, is not invention. Hence, the inventive act in reality consists of two acts; one mental, the conception of an idea; the other manual, the reduction of that idea to practice."

Some writers and judges maintain that for the purposes of the law invention and discovery are synonymous

terms. However, it is a matter of little practical importance whether the view that there is a clear distinction between invention and discovery is adopted, or whether the opposite view prevails. The latter is forcibly stated in Walker on Patents, section 2, as follows: "The word discovery does not have, either in the Constitution or the statute, its broadest signification. It means invention in those documents, and in them it means nothing else. The discoveries of inventors are inventions. The same man may invent a machine, and may discover an island or a law of nature. For doing the first of these things, the patent laws will reward him, because he is an inventor in doing it; but those laws cannot reward him for doing either of the others, because he is not an inventor in doing either. The statutes provide that patents may be granted for four classes of things. These are arts, machines, manufactures, and compositions of matter. None of these things can be originally made known by discovery, as our continent was. They are not found, but are created. They are results of original thought. They are inventions. Laws of nature, on the other hand, can never be invented by man, though they may be discovered by him. When discovered, they may be utilized by means of an art, a machine, a manufacture, or a composition of matter. It is the invention of one or more of these, for the purpose of utilizing a law of nature, and

not the discovery of that law, that may be rewarded with a patent."

A person is not entitled to a patent for any possible process or contrivance which he may invent, -using the word invent in the sense indicated in the foregoing paragraph. In order to be patentable, the subject matter must embody the following requisites: (1) The proper subject of a patent; (2) Invention; (3) Novelty; (4) Utility.

It is to the second of these characteristics of a patentable invention, that the writer will devote his attention in this thesis.

The rule as to what constitutes invention has varied at different periods in the history of the Supreme Court of the United States.

In the case of *Earle v. Sawyer*, 4 Mason 1, (1825),

Note. The above division was first declared by Mr. Walker in his text-book on the Law of Patents, the first edition of which appeared in 1888. Previous writers did not enumerate "invention" as one of the essentials of patentability. The division being stated for the first time in a text-book, it naturally enough was rather scouted at first by some prominent patent jurists, but gradually it commenced to be applied by the courts, until today it is generally accepted as the correct and only satisfactory classification.

Justice Story laid down a rule on this subject which is at once simple, practical and easily understood. Reviewing the doctrine contended for by the defendant, he says:

"The whole argument, upon which this doctrine is attempted to be sustained, is to this effect. It is not sufficient that a thing is new and useful, to entitle the author of it to a patent. He must do more. He must find it out by mental labor and intellectual creation. If the result of accident, it must be what would not occur to all persons skilled in the art, who wished to produce the same result. There must be some addition to the common stock of knowledge, and not merely the first use of what was known before. The patent act gives a reward for the communication of that which might be otherwise withholden. An invention is the finding out of some effort of the understanding. The mere putting of two things together, although never done before, is no invention.

It did not appear to me at the trial, and does not appear to me now, that this mode of reasoning upon the metaphysical nature, or the abstract definition of an invention, can justly be applied to cases under the patent act. That act proceeds upon the language of common sense and common life, has nothing mysterious or equivocal about it. The first section enacts that when any person, etc., shall allege that he has "invented any new and useful art, machine, manu-

facture or composition of matter, not known or used before the application, etc., it shall be lawful for the Secretary of State to cause letters patent to be made out, etc., granting the exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery, "etc. The thing to be patented is not a mere elementary principle or intellectual discovery, but a principle put in practice, and applied to some art, machine, or composition of matter. It must be new and not known or used before the application: that is, the party must have found out, created or constructed some art, machine etc., or some improvement on some art, machine, etc., which had not been previously found out, created or constructed by any other person. It is of no consequence whether the thing be simple or complicated; whether it be by accident or long labored thought, or by an instantaneous flash of mind that it is first done. The law looks to the fact, and not to the process by which it is accomplished. It gives the first inventor or discoverer of the thing the exclusive right, and asks nothing as to the extent or mode of the application of his genius to conceive or execute it. It must also be useful, it must not be noxious or mischievous, but capable of being applied to good purposes; and perhaps it may also be a just interpretation of the law, that it meant to exclude things absolutely frivolous or foolish.

But the degree of positive utility is less important in the eye of the law than some other things, though in regard to the inventor, as a measure of the value of his invention it is of the highest importance.

The first question, then to be asked in cases of this nature is whether the thing has been done before. In case of a machine, whether it has been substantially constructed before; in case of an improvement of a machine, whether that improvement has ever been applied to such a machine before, or whether it is substantially a new combination. If it is new, if it is useful, if it has not been known or used before, it constitutes an invention within the very terms of the act, and, in my judgment, within the very sense and intendment of the Legislature. I am utterly at a loss to give any other interpretation to the act, and, indeed, in the attempt to make that more clear which is expressed in unambiguous terms in the law itself, there is danger of creating an artificial obscurity."

From this clearly stated test for determining the presence or absence of invention, the courts, however, gradually departed. They were inclined to make inquiry in each case as to the nature of the mental process required to produce the subject matter. The culmination of this departure was reached in *Pearce v. Mulford*, 102 U.S. 112 (1880), where it was laid down that "All improvement is not invention

and entitled to protection as such. Thus to entitle it, it must be the product of some exercise of the inventive faculties, and it must involve something more than what is obvious to persons skilled in the art to which it relates."

Within a decade from the announcement of the decision in *Pearce v. Mulford*, the Supreme Court swung around to the early test of Justice Story, thus completely changing its position. The modern rule, then, is stated by Justice Brown in *McClain v. Ortmyer*, 141 U.S. 419, 426, in the following language:

"By some invention is described as the contriving or constructing of that which had not before existed; and by another, giving a construction to the patent law, as 'the finding out, contriving, devising or creating something new and useful, which did not exist before, by an operation of the intellect.' To say that the act of invention is the production of something new and useful does not solve the difficulty of giving an accurate definition, since the question of what is new as distinguished from that which is a colorable variation of what is old, is usually the very question in issue. To say that it involves an operation of the intellect, is a product of intuition or of something akin to genius, as distinguished from mere mechanical skill, draws one somewhat nearer to an appreciation of the true distinction, but it does not adequately express the idea.

The truth is the word cannot be defined in such manner as afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not. In a given case we may be able to say that there is present invention of a very high order. In another we can see that there is lacking that impalpable something which distinguishes invention from simple mechanical skill. Courts, adopting fixed principles as a guide, have by a process of exclusion determined that certain variations in old devices do or do not involve invention; but whether the variation relied upon in a particular case is anything more than ordinary mechanical skill is a question which cannot be answered by applying the test of any general definition."

In accordance with the above suggested method, which Mr. Walker very aptly calls "diagnosis by exclusion", ten negative rules have been laid down, which are applied in all cases where the presence of the degree of invention necessary to sustain a patent is called into question.

Rule I.

MERE MECHANICAL SKILL IS NOT INVENTION.

This is a question of fact which in many cases involves considerable difficulty. Indeed, not unfrequently it is a task requiring the keenest discrimination to determine where mere judgment and skill terminate and invention begins.

Between the portions of these two domains that are well defined there is a border land of some breadth within which many improvements lie, seemingly belonging as much to one domain as the other. Although it is the policy of the law to reward inventors by giving them the fruit of their productions for a limited time, yet on the other hand the patent laws cannot be so construed as to restrict ingenuity in the common employment of the people without becoming intolerably burdensome, rather than beneficial. The application of this policy makes the attainment of a just decision a very serious matter, for many inventions undoubtedly appear very simple when completed. The idea underlying most of the great inventions is easily comprehended. Today a school-boy can understand the safety-lamp, the steam engine and even the telephone, but their authors were peerless inventors nevertheless.

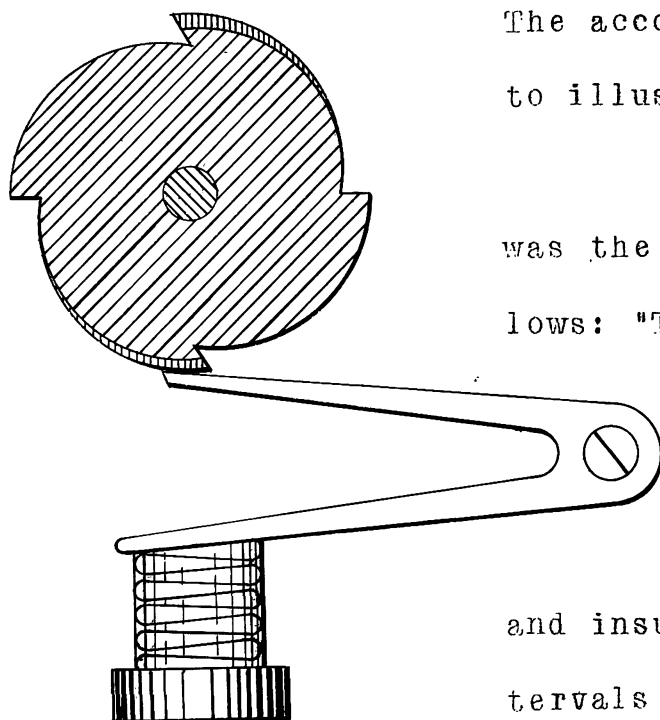
The leading case on this subject is *Atlantic Works v. Brady*, 107 U.S. 192. Brady had a patent for an improved dredge-boat. The alleged invention consisted mainly in attaching a screw (which the patentee called a "mud-fan") to the bow of a propeller dredge-boat provided with tanks for settling her in the water. It was operated by sinking the boat until the screw or mud-fan came in contact with the mud or sand, which, by the revolution of the screw, was thrown up and mingled with the current. The same results

had previously been attained by running similar boats stern foremost. In the course of the opinion, Justice Bradley says: "The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary headworkmen and engineers is generally adequate to devise, and which indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant to a single party a monopoly of every slight advance made, except where the exercise of invention, somewhat above the ordinary mechanical or engineering skill, is distinctly shown, is unjust in principle and injurious in its consequences."

"The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventions are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it

their business to watch the advancing wave of improvement and gather its foam in the form of patented monopolies , which enable them to lay a heavy tax upon the industry of the country without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to law-suits and vexatious accountings for profits made in good faith."

In the recently decided case of Schuyler Electric Co. v. Electrical Supply Co., 62 Fed. 588 (1894), the same question arose in an infringement suit based upon letters patent for a circuit breaker for electric lamps.



The accompanying sketch will serve to illustrate the invention.

The only claim involved was the first, which reads as follows: "The combination, in an

electric light switch, of a ratchet having metallic projections

and insulating teeth in the intervals between the same and a

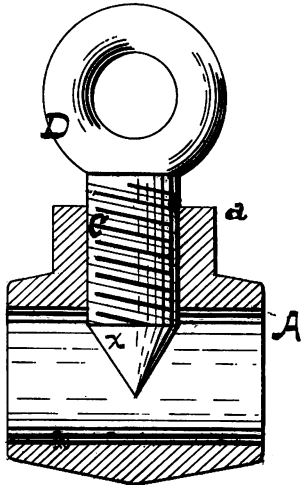
pawl or detent for engaging with the insulating teeth when released from contact with the metallic projections, as and for the purpose specified."

Judge Coxe, in the course of his opinion, uses the following language: "It will not be pretended that the invention is a fundamental one. The inventor concedes that his invention consists only in mechanical details for effecting improvements in circuit breakers. The device of the patent is an ingenious little contrivance for opening and closing an incandescent electric lamp circuit. It is shown as located in a lamp socket. Such an invention in any other art would probably be entitled to little consideration, but when the courts have to deal with patents relating to electricity they are apt to regard with superstitious awe the smallest contrivance with which that mysterious force is harnessed and set to work. Although this view of the subject may be correct in many instances, it is thought that it is hardly applicable to the case at bar. Snap-action circuit breakers, used in connection with alternating insulating and conducting material, were old. So were switches having a wiping contact and a turn in one direction only. This being so, it certainly did not require a profound knowledge of electrical science to produce the patented structure." The patent was sustained but it was confined both by the prior art and its own language to the device described.

Within a fortnight after the foregoing decision by Judge Coxe, a like question was decided in an opinion by

Chief Justice Fuller, in *Sargent v. Covert*, 14 Sup. Ct. 676.

The patent related to a device used upon rope halters. The accompanying longitudinal section, studied in connection with the description in the specification, will serve to explain the contrivance.



"A represents a thimble of any suitable dimensions, provided on one side with a nut or enlargement, a, having a hole through it with female screw threads. The thimble, A, is fastened on the rope at any desired place, by means of a sharp pointed screw, C, x, which

passes through the thimble at the nut, a, and the rope. This screw is provided with a round eye, D, for the reception of a snap hook."

In support of the defense of invalidity, the infringers introduced a prior patent for an "improvement in cattle tie" granted to one Wiard. The screw in the patent sued on, as shown herewith, was sharpened, whereas the end of the screw in the Wiard patent was blunt. It appeared on the trial that the Wiard socket as actually made and sold, had a convex end. Each of these screws compressed the rope within the socket, but the Covert screw, being sharpened, penetrates further than the other. The Court was of opinion "that the alleged improvement was such a one as would have

occurred to any one practically interested in the subject, and that it did not involve such an exercise of the inventive faculty as entitled it to protection."

The writer is unable to perceive any substantial, practical difference between the previously stated rule (ante p.9) and the second rule of Mr. Walker, which is that "excellence of workmanship is not invention." It would appear rather as an over-refinement of classification to attempt to distinguish them in view of the indistinct line of demarcation which exists.

Rule II.

SUBSTITUTION OF MATERIALS IS NOT INVENTION.

The case of Hotchkiss v. Greenwood, 11 Howard 248, is usually cited in support of this general subject. The improvement claimed in the patent was the making of door knobs of clay or porcelain, fitted upon a shank in a common manner. It was shown that knobs of clay or porcelain, apart from the particular application in hand, were old, and that the mode of fastening the shank into the cavity of the knob was old when metallic knobs were used. In holding that patent to be void, the Supreme Court, speaking by Justice Nelson, said: "The difference is formal and destitute of ingenuity or invention. It may afford evidence of judgment and skill in the selection and adaptation of the materials in the manufacture of the instrument for the purposes intended, but nothing more."

The recent case of Klein v. City of Seattle, 63 Fed. 702, presents a like conclusion. What was claimed by Klein's application, and to be considered as protected by the patent, was a pin of iron or steel, of suitable size and any length, with an enlarged head of lead or any soft metal, upon it, with a thread to fit the inside of the ordinary glass insulators, which are made with a spiral groove for screwing on to a screw head. The heads were cast upon the ends of the pins by running molten lead into a mold while the end of a pin is held therein. A firm union of the lead to the iron was secured by roughing the pin end with a chisel. The kind of pin most commonly in use is made of wood with a thread on the end to hold the insulator; but wooden pins are sometimes objectionable because they cannot be made of sufficient strength without being of a size that unfits them for use in many places. Judge Hanford said: "Now, all that can be claimed as the invention in this case is the combination consisting of the use of iron in place of wood for a pin, and lead in place of rags, wood, or cement for a filling, and the process of making a firm union of the lead head and iron pin; now it is my opinion that there is nothing in this that amounts to an invention."

However, it is not to be laid down broadly that the use of one material in place of another in a manufactured vendible article or a machine, can never be the subject of

a patent. Hotchkiss v. Greenwood decides that the employment of one known material in place of another is not invention, if the result be only greater cheapness and durability of the product. But that is all. With the gradual development of the patent law in the United States, four well defined exceptions to the rule have been established.

(1) If the substitution involves a new mode of construction, it may amount to an invention.

This conclusion is attained in the case of Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486. Justice Story, in delivering the opinion of the Court, used the following language: "If then the claim be read, as it should be, in connection with the preceding part of the specification, and construed in the light of the explanation which that gives, the invention claimed and patented is 'a set of artificial teeth as a new article of manufacture, consisting of a plate of hard rubber, with teeth, or teeth and gums, secured thereto in the manner described in the specification, by embedding the teeth and pins in a vulcanizable compound, so that it shall surround them while it is in a soft state, before it is vulcanized, and so that when it has been vulcanized the teeth are firmly and inseparably secured in the vulcanite, and a tight joint is effected between them, the whole constituting but one piece.'" It is evident this is much more than employing hard rubber to

perform the functions that had been performed by other materials, such as gold, silver, tin, platinum, or gutta-percha. A new product was the result, differing from all that had preceded it, not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties. It was capable of being perfectly fitted to the roof and alveolar processes of the mouth. It was easy for the wearer and favorable for perfect articulation. It was light and elastic, yet sufficiently strong and firm for the purpose of mastication. It was unaffected by any chemical action of the fluids of the mouth. Besides all this, they were very inexpensive as compared with other arrangements of artificial teeth. To us it seems not too much to say that all these peculiarities are sufficient to warrant the conclusion that the device was different in kind or species from all other devices. We cannot resist the conviction that devising and forming such a manufacture by such a process and of such materials was invention. More was needed for it than simply mechanical judgment and good taste."

(2) Another exception to the rule arises where the substitution involves a new mode of operation.

Thomson Meter Co. v. National Meter Co., 65 Fed. 428 (Jan. 1895), illustrates this subject. This suit was brought to restrain the infringement of letters patent for improvement in water meters, issued to the National Meter Company,

as assignee of Lewis H. Nash. The meter to which the Nash piston was applied had a circular measuring chamber, with curved sides and conical ends, and a flat or conical disc piston, having a central ball bearing, to which piston a wobbling motion was imparted by the flow of the water through the meter chamber. A system of gear wheels and dials on top of the meter case served to register the number of complete movements of the piston, and thus indicate the quantity of water passed. Nutating discs were not unknown before Nash's invention, but they had been made wholly of hard rubber or wholly of metal. The objections to the use of a metallic piston was, (1) its weight, and its resistance to the flow of water, in consequence of its not operating as rapidly as would a piston made of lighter material; (2) if made sufficiently thin to be light enough, accuracy of measurement would be impaired; and (3) the friction between metal and metal is greater than between metal and rubber. The superior adaptation of hard rubber for use in a water meter was also well known, but prior to the invention of Nash, it had the serious and apparently insuperable defect of losing its resilience and shape by temporary immersion in hot water. Temporary immersion in hot water occasionally arises when the valve which is between the meter and a steam boiler gets out of order, and there is an excessive back pressure. The effects of this

"accidental hot water" are to soften the hard rubber disc, to impair and destroy its resilience, and to produce a radial expansion which causes its edges to jam against the sides of the meter chamber, so that the disc becomes warped and is rendered useless. Nash's contrivance was the introduction of a steel-wire ring embedded in the rubber near the periphery of the disc, -relatively like the tire of a wheel, -and this arrangement was found to effectually restrain the radial expansion of the disc when immersed in "accidental hot water", and prevent the jamming and distortion of the disc. The validity of the patent was therefore established. The court added, -"nor is the complainant's piston only an aggregation of old parts. The metal and rubber do not act independently, but co-operate in producing a new result, and this constitutes patentable invention.

(3) If the substitution results in the first success in the art, the inventor will be entitled to the protection of the patent laws.

Edison Electric Light Co. v. U.S. Electric Lighting Co., 52 Fed. 300, decided by Judge Lacombe in 1892, is the case which probably corresponds most exactly with this rule. In that case the validity of Thomas A. Edison's "filament carbon burner" patent was contested. In delivering the opinion of the court, the learned judge said: "Although all-glass globes, with leading wires passing through the glass

and sealed into it,had been used before to preserve the conditions of the interior of a chamber from the effects of leakage at the joints,and although the prior art,incl-
uding the French patent,indicated that subdivision of the electric light was to be obtained by the use of burners of high resistance and small radiating surface,and although the pencils of carbon had been tried in imperfect vacua,
and found wanting,it was invention,in view of the teaching of the art as to the disintegration of carbon under the action of an electric current,to still select that substance as a suitable material from which to construct a burner much more attenuated than had ever been used before,reduced in size to the filamentary form in which economy of construction requires that it must be used in order to avail of the philosophy of high resistance and small radiating surface,and so to combine old elements that the disintegration due to "air washing" should be practically eliminated and the burner thus become commercially stable.It is true that carbon burners still break down,that the improvements neither of Edison nor of other inventors have made them absolutely stable,and in a sense it may be said that Edison only made them more stable than they were before; that it is a mere matter of degree. But the degree of difference between carbons that lasted one hour and carbons that lasted hundreds of hours,seems to have been precisely the differ-

ence between success and failure, and the combination which first achieved the result. "long desired, sometimes sought and never attained," is a patentable invention.

It is true that the combination and manipulation which secured a practically perfect vacuum by heating the burner while the exhaust pump was at work, and subsequently sealing the globe without introducing a foreign gas, is set by Edison in his French patent as a means of effecting such a change in the condition of platinum as would permit of its being raised to high temperatures without rupture, cracking or diminution of weight by volatilization. But the evidence shows that the platinum lamp did not achieve success, and we think there was manifest invention in the substitution of carbon freed from occluded gases, and placed in a nearly perfect vacuum. The change in material involved a reorganization of the lamp. Dispensing with the thermal regulator, which was an essential part of the structure of the French patent, it developed new properties in the lamp by reason of the enormous differences between the resistances and the melting points of the two materials; it utilized the discovery of that cause ("air washing") of the instability of carbon, which seemed to preclude the hope of its future usefulness as an incandescent illuminant. Finally and principally, by the substitution, there was presented the complete combination of elements, which for

the first time in the art produced a practical electric light. We are of the opinion that on principle and under the authorities such a substitution of material is invention."

(4) A fourth exception is met with in cases where the substitution changes both the purpose and the material.

This point is illustrated very clearly in *Potts v. Creager*, 15 Sup.Ct. 194 (1895), where the complainants alleged the infringement of their patent for a clay disintegrator. The only difference between the patent in dispute and a prior polishing machine, exhibited on the trial by the defendants, consisted in the substitution of bars of steel for glass bars on the periphery of the cylinder, the provision of an abutting surface in the form of a revolving roller, and then the use of the machine for a totally distinct and different purpose. Speaking through Justice Brown, the Supreme Court said: "As a result of the authorities upon this subject, it may be said that if the new use be so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use; but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use. Applying this test to the case under consid-

eration, it is manifest that, if the change from the glass bars of the Creager wood exhibit to the steel bars of the Potts cylinder was a mere change of material for the more perfect accomplishment of the same work, it would, within the familiar rule of *Hotchkiss v. Greenwood*, not involve invention. But, not only did the glass bars prove so brittle in their use for polishing wood that they broke and were discarded after half an hour's trial, but they would undoubtedly have been wholly worthless for the new use for which the Pottses required them. Not only did they discard the glass bars, and substitute others of steel, but they substituted them for a purpose wholly different from that for which they had been employed. Under such circumstances, we have repeatedly held that a change of material was invention."

Rule III.

CHANGE OF FORM, SIZE, OR DEGREE, IS NOT INVENTION.

In *Adams Electric Ry. Co. v. Lindell Ry. Co.*, 63 Fed. 986 (1894), this rule is applied to electric street car motors. In his opinion, the worthy judge refers to Edison's experimental electric locomotive operated at Menlo Park, New Jersey, in 1880. It was a locomotive as distinguished from a passenger car which may be moved by power within or without it; but, in essential features, it was much the same as the device of the complainant. Judge Hallett continues: "There

was an electric motor geared to the driving axle, and resting on a frame attached to the axle boxes. All kinds of gearing for transmitting the power of the armature to the driven axle were successively adopted, but the change from one to another of such well-known appliances was not in the way of modern invention. Some changes in the form of the motor and the carrying frame were desirable, and probably necessary, to admit of mounting the body of a passenger car on the Edison locomotive, and thus to change that vehicle to the car of the present time, which carries its own motor. But it is doubtful if there is anything like invention in making such changes. A motor consisting of many coils of wire combined in a form suitable for an armature to revolve rapidly in a frame, and of other coils of wire combined in a form suitable for a fixed magnet in another part of the same frame, may be built in any desired shape and size. The matter of reducing the Edison apparatus of 1880 to a size and shape which would admit of putting it under an ordinary passenger car in conjunction with the car axle was no great achievement." The patent was therefore held void for want of invention.

In *Union Paper Bag Mach. Co. v. Waterbury*, 58 Fed. 566, Judge Coxe says: "One maker may select one form of fold, another maker another form, and so on, but they are not inventors if all accomplish, substantially, the same well-known

result, the differences being of form only. The one who first embodied the conception of a flat-bottomed bag capable of being folded flat and easily distended into an unsupported box was very likely entitled to rank as an inventor. But after this had once been done it did not require invention to change the shape or order of the folds, unless some new or beneficial result was obtained. If a contrary intention be maintained where is the court to stop? Where shall the line be drawn? If invention resides in the mere sequence of steps, as many patents may be granted as new ways may be suggested of folding the bag."

But there are exceptions to this rule also, as, for instance, in cases in which form is of the essence of the invention, and then change in form is change in substance. Thus in *Eppinger v. Richey*, 14 Blatch. 307, the Circuit Court sustained a patent for a peculiar form of plug tobacco that was shown to possess great advantages.

In *Knickerbocker Co. v. Rogers*, 61 Fed. 297, the patentability of a dust collector was sustained. The dust collector was of the same general form as some pre-existing spiral steam separators, with the exception of a change in the form of the cone, and the relative size of the openings."

Rule IV.

MERE AGGREGATION IS NOT INVENTION.

At an exhibition of railway appliances held in Chicago some

years ago, the Philadelphia & Reading Railroad Company presented a remarkably well constructed locomotive. It had the Wooten patent fire-box, an extension smoke-box, injectors of the best type, steam driver-brakes, steam reversing gear, and a number of other features which being all embodied in this locomotive, entitled the Company to a medal for exhibiting the locomotive which showed the greatest number of improved modern railway appliances. Such a union of parts, however, did not entitle the Railroad Company to a patent. Merely bringing old devices into juxtaposition, and there allowing each to work out its own effect without the production of something novel, is not invention. The extreme cases of aggregation are easily distinguished. It is evidently only an aggregation when an additional car is added to a train of cars. The additional effect is equal to the added cause, and we are not confused because our purpose could not be accomplished without the additional car. An aggregation thus formed is clearly seen to be, to use the language of Justice Matthews, "the mere adding together of separate contributions."

Hailes v. Van Wormer, 20 Wall. 353, and Royer v. Roth, 131 U.S. 201, are cases illustrative of this topic. The former is the well-known Base-Burning Stove Case, in which the patentee had made claim to a combination which included the fire-pot, coal-reservoir, revertible flues, direct

draft and illuminated openings, all of which singly considered were old, but their union in one structure gave the stove many desirable qualities. In *Royer v. Roth*, the claim of the patent was as follows: "In combination with the drum A, of a rawhide fulling machine operating to twist the leather alternately in one direction and the other, a shifting device for the purpose of making the operation automatic and continuous substantially as described." In both cases there was but the assembling of old devices, without the exercise of invention. And in *Hailes v. Van Wormer*, if not as obviously, fully as surely, as in the illustration of the aggregation by the addition of the car, to quote the language of Justice Gray in *Heating Co. v. Burtis*, 121 U.S. 289: "There was no specific quality of the result which could not be definitely assigned to the independent action of a single element." In *Royer v. Roth*, the Court held that there was no invention in the application of the shifting device to a fulling machine.

It is well settled that the action of the elements need not be simultaneous. Judge Acheson said in *Stutz v. Armstrong*, 20 Fed. 847: "It is by no means essential to a patentable combination, as the defendant's argument implies, that the several devices or elements should coact upon each other. It is sufficient if all the devices co-operate with respect to the work to be done, and in furtherance

thereof, although each device may perform its own particular function only."

In *Holmes Burglar Alarm Co. v. Domestic Tel. Co.*, 42 Fed. 226, Judge Wales makes use of the following language: "The simultaneous co-operation of the parts is not essential to a patentable combination, if the parts are so arranged that the successive action of each contributes to produce some one practical result, which result, when attained, is the product of the simultaneous or successive action of all the elementary parts, viewed as one entire whole. The term "co-operation does not mean acting together or simultaneously, but, unitedly to a common end. So here the electrical protection of the conductors is the result produced by the combination, and the two instruments guard the same line at the same time. One instrument protects it from cutting, and the other from short-circuiting. Remove either instrument and the result fails pro tanto. This result was useful, and never before known. The design of the combination was to protect the patented apparatus against the methods of disabling it by tampering with the conductors, as could be done with the prior systems. The instruments co-operate in making good each other's deficiencies, and the arrangement of the conductors is such that all their essential parts are brought under the protection of the instruments."

Rule V.

DUPLICATION OF PARTS IS NOT INVENTION.

The doctrine on this subject is so self-evident that the Supreme Court has been called upon to illustrate it in only a few cases.

In *Dunbar v. Myers*, 94 U.S. 187, 197, the subject matter was a circular saw mill having two deflector plates behind the saw, one on each side of it, to spread the two parts of the lumber behind the saw so as to prevent the lumber from binding against the faces of the saw and impeding its progress. It had been old to have one such deflector plate behind the saw for the same purpose. It was shown that in some cases benefit accrued from the use of two deflector plates, and the circuit court sustained the patent. But the Supreme Court reversed the decree, and declared the claim which covered the additional plate to be void for want of patentable invention.

Rule VI.

THE OMISSION OF ONE OR MORE PARTS OF AN EXISTING THING DOES NOT CONSTITUTE INVENTION, UNLESS THE OMISSION CAUSES A NEW OPERATION OF THE PARTS RETAINED.

Stow v. Chicago, 3 Banning & Arden 92, is the best illustrative case upon this proposition. The patent in that case covered a wood pavement like that of one Nicholson, except that it omitted the board foundation and also the

board strips of that earlier pavement. The circuit court held that those omissions constituted no invention, saying:

"A reconstruction of a machine so that a less number of parts will perform all of the functions of the greater, may be invention of a high order; but the omission of a part, with a corresponding omission in function, so that the retained parts do just what they did before in the combination, cannot be other than a mere matter of judgment, depending upon whether it is desirable to have the machine do all, or less, than it did before."

But the patentee is entitled to protection where the omission changes the mode of operation and turns a bad into a good result. An illustration of this is presented in the case of the Edison Electric Light Co. v. U.S. Electric Lighting Co., 52 Fed. 300, 308, where the dispensing with the thermal regulator which was an essential part of the structure of the prior French patent for a platinum lamp, developed new properties in the new lamp by reason of the enormous differences between the resistances and the melting points of the two materials.

Rule VII.

IT IS USUALLY NOT INVENTION TO SUBSTITUTE IN AN OLD DEVICE ONE OR MORE MECHANICAL EQUIVALENTS FOR ONE OR MORE OF ITS PARTS. THE SAME IS TRUE IN CHEMICAL CASES WHERE A CHEMICAL EQUIVALENT IS SUBSTITUTED.

The doctrine of equivalents usually arises in considering the question of infringement, and will be merely touched upon in this thesis.

Speaking of equivalents, Mr. Walker says: "The subject is of double importance, because it relates sometimes to the validity and sometimes to the infringement of patents. A.B. may construct and may patent a machine which differs from the prior patented machine of C.D. in one part only. If the courts decide that the new part inserted, is an equivalent of the old part omitted, then the machine of A.B. will be an infringement, and will not be an invention. If, on the other hand, the courts hold that the part inserted is not such an equivalent, then the machine of A.B. may be an invention, and will not be an infringement of any claim covering the entire machine of C.D."

The term "equivalent" as used in patent law has two meanings. The one relates to the results that are produced and the other to the mechanism by which those results are produced. Two things may be equivalent, as producing the same result, when they are not the same mechanical means.

In *Smith v. Nichols*, 21 Wall. 119, the Supreme Court says: "A mere carrying forward or new or more extended application of the original thought, a change only in form, proportions, or degree, the substitution of equivalents, doing substantially the same thing in the same way by substantially

the same means with better results, is not such invention as will sustain a patent."

To further illustrate this subject, Consolidated Piedmont Cable Ry. Co., v. Pacific Cable Ry. Co., 53 Fed. 385, and George Frost Co. v. Silvermann, 62 Fed. 643, may be cited.

In the former case, the device alleged to be infringed by defendant was a clamp or grip for cable railways. "In the plaintiff's machine, the pressure which secures the grip of the cable is exerted through friction rollers; in the defendant's machine, through what was called in argument a bell-crank. In the testimony it was assimilated by an expert witness to a toggle joint. If it is either, it is an equivalent. A bell-crank is a well-known mechanical device, and a toggle joint was held an equivalent to exert pressure of friction rollers by Judge Washington in Gray v. James."

In Frost Co. v. Silvermann, the complainant's patent showed and described a garter consisting of a strip of elastic webbing extending partially around the limb, and having its two ends connected by a loop of cord which rendered freely through its connections with the ends of the webbing, and attached to the loop was a clasp to hold the garment to be supported; the loop formed a connection between the clasp and the band of webbing, and a rendering, self-adjusting connection between the ends of the webbing. The only differences between it and defendant's garter were that,

instead of a fibrous cord for connecting the two ends of the webbing, the defendant's substituted a metallic chain, composed of bead-like links flexibly connected with one another, and their clasp was free to render upon this loop of chain, whereas in the patent drawing the clasp seemed to be rigidly fixed to the ends of the cord. "The latter feature, however, does not enter into the claim of the patent and it is wholly immaterial to the desired result whether the clasp is rigidly attached to the loop or renders thereon. Now, cords and chains, as appears from the proofs (and as, indeed, is commonly known), are interchangeable mechanical equivalents for a great variety of purposes. The change from a fibrous cord to a flexible chain affects neither the form of construction, the mode of operation, nor the result. The chain loop performs the exact function that the cord loop does, and in precisely the same way. This is a plain case of equivalency."

Rule VIII.

NEW COMBINATION, WITHOUT NEW MODE OF OPERATION, IS NOT INVENTION.

In the leading case of *Pickering v. Mc Cullough*, 104 U.S. 310, 318, the Supreme Court, speaking through Justice Matthews, said,—"In a patentable combination of old elements all the constituents must so enter into it as that each qualifies every other.... It must form either a new machine

of a distinct character and function, or produce a result due to the joint and co-operating action of all the elements and which is not the mere adding together of separate contributions."

In *National Cash Register Co. v. American Cash Register Co.*, 53 Fed. 367, the circuit court of appeals stated the law on this point as follows: "A combination, to be patentable, must produce a new and useful result, as the product of the combination, and not a mere aggregate of several results, each the complete result of one of the combined elements; there must be a new result produced by their union."

Burt v. Every, 133 U.S. 349, involved a patent for an improvement in boots and shoes, which was claimed to consist of a novel mode of construction, whereby the ordinary elastic goring at the sides of the shoes and the lacing up at the front were both dispensed with, while at the same time the tops expanded to receive the foot, and fitted neatly around the ankle, being also water-tight to the extreme top of the shoe. Speaking for the Court, Justice Lamar said: "It is difficult to see any patentable device or function in the *Every* shoe. It is a mere aggregation of old parts, with only such changes of form or arrangement as a skillful mechanic could readily devise, - the natural outgrowth of the development of mechanical skill, as distinguished from invention. The changes made by *Every* and *Heston* in the construction of a water-

tight shoe were changes of degree only, and did not involve any new principle. Their shoe performed no new function."

Other cases but repeat and illustrate this rule in various ways. That the use of a combination in a different machine does not change the combination, see *LaRue v. Western Electric Co.*, 28 Fed. 85; changes in the arrangement of the elements do not change the combination unless they also change its function or the function of an element, *Phipps v. Yost*, 26 Fed. 447.

Rule IX.

USING AN OLD THING FOR A NEW PURPOSE IS USUALLY NOT INVENTION.

It is a general rule that if the prior device is a patented one, the patentee has the exclusive right to it for all the uses to which it is applicable, no matter whether he knew of those uses or not, and no matter what the use for which he deemed it specially applicable. Cases of this kind come under the head of what is known to the patent law as "double use" which is to be distinguished from what is called "new use."

Merwin, in his work on "Patentability of Inventions", says: "Strictly speaking, a new use is a use different from that with which it is compared,--different in the sense that invention was required to reach it, and therefore it is patentable,--whereas a double use, as it is called, is a second employment of some process or contrivance so like to the

previous employment of it, that, given the first, inventive genius was not needed to attain the second -- the skill of the workman was sufficient for that purpose. The second use, therefore, is not patentable."

In *St. Germain v. Brunswick*, 135 U.S. 230, (a case upon a patent for a revolving cue-rack) Chief Justice Fuller, speaking for the Court, said: "This case falls within the familiar rule that the application of an old process or machine or apparatus to a similar or analogous subject, with no change in the manner of application, and no result substantially distinct in its nature, will not sustain a patent although the new form of result may not have before been contemplated. . . . As the revolving rack held the cues in the same way and by the same means as the ordinary rack, if patentable novelty existed at all it must be found in making the racks revolve, when constructed and operating in the manner stated. But revolving contrivances, such as table casters and the like, for the reception and carriage of articles, so as to bring them within easy reach, were well-known, and the application of such contrivances to the holding and carrying of cues was but the application of an old device to a new and analogous use, with such changes only as would naturally be made to adapt it thereto."

In *Smith v. Partridge*, 42 Fed. 57, it was held that where the uses are precisely similar, and the one device sug-

gests the other, the fact that the anticipating device was applied to regulate the vanes of windmills, while the one in question was applied to fans for ventilation, which belonged to a different department of art, does not prevent the two devices from being analogous.

In *Cahoone Barnet Mfg. Co. v. Rubber Harness Co.* 45 Fed. 582, this doctrine was applied to design patents. The circuit court, comparing design patents and patents for inventions, said: "In both, the final production must have been engendered by the exercise of brain power, and to such an extent that it may be said to be born of genius. If this be correct, it follows necessarily that the adaptation of old devices, or of old forms or designs, though never so beautiful to new purposes or ornamentations, however exquisite the result is not invention. It is not begotten of originality. And so it is forbidden for one to choose an existing design simply devote it to a new use, and, because of such new use, successfully to claim the benefits of the patent laws."

An exception to this general rule arises in the cases where the new use is not nearly analogous to the old use. *Potts v. Creager*, 15 Sup. Ct. 194, cited under rule II, 4, is an illustrative case on this point.

Rule K.

DOUBTS RELEVANT TO PRESENCE OF INVENTION MAY BE SOLVED BY SHOWING SUPERIOR UTILITY AND GENERAL PUBLIC USE; OR BY NECESSITY OR NON-NECESSITY FOR EXPERIMENT.

The preceding nine rules will in most cases suffice to determine the presence or absence of invention; but where the question is still in doubt, the fact that the device has gone into general use, and displaced other devices employed for a similar purpose is usually regarded as sufficient to turn the scale in favor of the invention.

The leading case on this subject is *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 495, where it is said: "We do not say the single fact that a device has gone into general use, and has displaced other devices which had previously been employed for analogous uses, establishes in all cases that the later device involves a patentable invention. It may, however, always be considered, and when the facts in the case leave the question in doubt, it is sufficient to turn the scale."

The test embodied in the foregoing rule was a perfectly satisfactory one in *Stahl v. Williams*, 64 Fed. 121, where the court said: "the rival incubators were operated side by side at the county fair, and the practical farmer could count the eggs and hatching chickens, and reduce the question of comparative utility to a mere mathematical exercise."

Occasionally, however, a case arises in which the weakness of the test is shown with great clearness. For instance, one man may, by the adoption of an alluring trade-mark succeed in catching the eye of the people, and palming off upon them wares of no greater intrinsic value than those of his rivals. Then again, enormous sales may follow from the more attractive appearance or the more perfect finish of the article, from more extensive and judicious advertising, larger discounts to the trade, or greater energy in pushing sales. There are, therefore, a large number of other considerations than that of invention entering into a question of this kind, which render the popularity of the article an unsafe criterion.

Charles S. Verner